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ABSTRACT

Information on the commuting patterns of the employees of a recently constructed manufacturing facility in north central Illinois is presented in this report. The subjects included 720 hourly workers and 300 salaried employees of a cold rolling mill. Data were obtained from the 1972 personnel records of the plant and were available for 98% of the employees. Air and road miles between residence and plant site were calculated. Major findings were that there is considerable variation in commuting distance among the employees and that the radius of the commuter field is very wide. It was noted that the income generated by the plant is dispersed over a wide area, which is desirable for the region but may pose problems for the host community. (PS)

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Rural Industrial Development and Commuting Patterns

One of the major trends in industrial development in the United States is the construction of large plants in small towns and rural areas. These new installations range across the industrial spectrum--from a steel plant in rural Illinois to a brick factory in the coastal plains of South Carolina to a tissue paper mill in central Mississippi.[1] The trend began soon after World War II, gathered momentum in the sixties and can be expected to accelerate in the next several decades for at least three reasons.

First, the federal government has indicated strong support for rural industrial development. The Rural Development Act of 1972 authorizes over 250 million dollars to promote the growth of industry in non-metropolitan areas. Second, a similar orientation prevails at the local level. Over 14,000 agencies are actively engaged in promoting industrial development in the various communities and counties they represent.[2] Third, rural areas are attractive to industry--largely for such financial reasons as decreased taxes and lower land, water and labor costs.

Given the liklihood that these factors will continue to generate rural industrial development, it is important to consider the social, economic, and human consequences of such development. One area in which research is particularly needed relates to the commuting pattern which emerges when a large industry locates in a small town. Heretofore, virtually all empirical analyses of commuting behavior have been confined to metropolitan areas.[3] Thus, there is a dearth of information

on the commuting patterns of residents of small towns. And, in the case of the commuting patterns of residents of non-metropolitan areas which have experienced industrial development such data are, to our knowledge, non-existent.

The present research attempts to at least partially alleviate this situation by reporting data on the commuting patterns of the employees of a recently constructed manufacturing facility in north central Illinois. Our specific goals are (1) to add to the general data bank on non-metropolitan commuting, and (2) to specifically describe emergent commuting patterns in an industrializing rural area.

Research Background

In April, 1965 Jones-Laughlin Steel Corporation (J-L) announced plans for the development of a major production complex in an open country area near the village of Hennepin in Putnam County, Illinois. Construction began in the spring of 1966, and full operation at "Hennepin Works" began in December, 1968. The installation is a heavily capitalized, ultra-modern cold rolling mill with an extremely diverse labor force. Hourly (blue-collar) workers (n=720) range from laborers to motors inspectors to expert roll finishers. The salaried (white-collar) group (n=300) includes such varied occupations as typists, chemists, computer programmers and senior executives.

The population of Hennepin was 391 in 1960 and 535 in 1970. Population figures for Putnam County were 4,570 in 1960 and 5,007 in 1970. The county was classified as 100% rural in both 1960 and 1970. There are no large cities in contiguous counties and Peoria, the

nearest SMSA is over 40 miles away. The labor force of the plant represents a very substantial segment of the employed population of the small rural communities which characterize the region.

Data were obtained from the 1972 personnel records of the plant. Complete data were available for 1,035 (98%) of the 1,050 employees. Schnore has discussed the utility of management records in the study of commuting patterns.[4]

There is no mass transit system in this rural area and all employees commute by automobiles. Using detailed county maps we calculated (1) air, and (2) road miles between place of residence and the plant site for the 1,035 individuals for whom data were available. While most previous studies of commuting have been limited to air miles, Lonsdale has pointed out that this index may constitute only a gross approximation of actual miles traveled.[5] Accordingly, both air and road miles are examined.

Findings

Table 1 presents descriptive statistics regarding the commuting patterns of the sample. As these data indicate, there is considerable variation in commuting distance among the employees regardless of whether miles are measured by road or by air. The average number of air miles is 13.3, while average road miles is 19.1. Further, the radius of the commuter field is very wide--41.6 air miles and 57.0 road miles. In addition, 68 different communities have at least one resident employed at the plant. These findings all support Taylor and Jones' hypothesis that large commuter fields develop when a large plant locates in a rural area.[6]

(Table 1 about here)

Table 2 reports a percentage distribution for the sample by air and road miles. These data provide a detailed depiction of distance commuted.

(Table 2 about here)

The data presented in Table 2 highlights the large size of the commuter field for the plant. For example, over 25% of the sample travel more than 25 road miles to the plant. Thus, one-quarter of the labor force commutes over 50 miles each day. And less than one in five employees commutes less than 20 miles each day. Clearly, the data suggest a very high degree of spatial mobility in industrializing rural areas.

Comment

The wide commuter field, coupled with the large number of communities contributing workers to the plant, suggests a substantial amount of income leakage. More specifically, the income generated by the plant is dispersed over a wide area. While this may be desirable from a regional development point of view, it could pose profound problems for the host community. Many small communities in the United States are seeking to attract industry and thus stimulate the local economy. As Garrison has cautioned, however, large industry is not a panacea for the economic ills of small towns and rural areas:

> The establishment of a large manufacturing plant in a rural town is often thought to bring about an accompanying increase in tax revenue (and employment) for the community... (but) new manufacturing plants not infrequently cost rural communities more than they return in (stimulating the economy).[7]

In general, the host community must provide services for the employees of the plant, but the great bulk of the income generated is spent in other communities. Thus, the real benefactors are those nearby communities which have not spent money to attract the plant and do not provide services to the facility, but have a number of residents working at the plant. Thus, the wide commuter field has profound practical implications for the many small communities currently spending money and time to attract industry.

Table 1. Descriptive Statistics on Commuting for 1,035 Industrial Workers

	Air Miles	Road Miles
Mean	13.3	19.1
Standard Deviation	7.3	11.4
Maximum	41.6	57.0
Minimum	.2	1.0

Number of communities having at least one resident employed at plant = 68

Table 2. Percentage Distribution of 959 Industrial Workers by Air and Road Miles between Place of Residence and Plant Site

Distance in Miles	AIR	ROAD
0-5	9.2	9.1
5-10	19.9	9.2
10-15	39.6	14.3
15-20	14.2	36.8
20-25	8.3	4.8
25-30	5.2	7.2
30 +	3.5	18.7

FOOTNOTES

1
See John C. Crecink, Rural Industrialization, Agricultural Economic Report 189. Washington, D.C.: U.S. Government Printing Office, 1970; J.V. McElveen, Rural Industrialization in the Southeast Coastal Plain, Agricultural Economic Report 174. Washington, D.C.: U.S. Government Printing Office, 1970.

2
Paul A. Montello, "The Importance of Education in Attracting Industry," Industrial Development, January, 1969, page 23.

3
See, for example, James O. Wheeler, "Some Effects of Occupational Status on Work Trips." Journal of Regional Science, 9, 1969, pages 69-77; Anthony J. Catanese, "Commuting Behavior Patterns of Families," Traffic Quarterly, 24, 1970, pages 439-458.

4
Leo F. Schnore, Three Sources of Data on Commuting, Journal of American Statistical Association, 55, 1960, pages 8-22.

5
Richard Lonsdale, Two North Carolina Commuting Patterns, Economic Geography, 42, 1966, pages 114-138.

6
Lee Taylor and Arthur R. Jones, Rural Life and Urbanized Society, New York: Oxford University Press, 1964.

7
Charles Garrison, The Impact of New Industry. Agricultural Economic Report 191. Washington, D.C.: U.S. Government Printing Office, 1970.